REMARKS

Applicants appreciate the thorough examination of the present application as evidenced by the Final Action mailed March 30, 2009. Claims 1–9 and 13–16 are pending in this application. Applicants respectfully request further consideration of the present application in view of the remarks below.

Claim 5 is amended herein to correct an inadvertent typographical error introduced in a previous response. The issues raised by the Examiner in the Final Action are addressed hereinbelow in the order in which they appear in the Final Action.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 4, 7, 15 and 17–19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,824,709 ("Suka") in view of U.S. Patent No. 5,814,673 ("Khait"). The Examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform an initial volume-reducing step on foamed (expanded) polystyrene in an extruder without the application of external heat as discussed by Khait in a process as discussed by Suka. Applicants respectfully traverse this rejection.

The process of Suka is directed toward a method of recycling plastic waste material, which include ABS resin, polypropylene and polystyrene. If the waste product is ABS resin or polypropylene, which are non-expanded plastics, the waste product is washed, dried and placed in a crusher (*see*, col. 2, lines 43–47 of Suka). However, if the waste product is foamed (expanded) polystyrene, the waste product is first put in a volume reducing vessel which is heated to a predetermined temperature to reduce the volume in order to increase the efficiency of the dissolving bath (col. 2, lines 47–50). Suka does not teach or suggest that it would be of benefit to reduce the volume of expanded polystyrene in a crusher. Khait discusses a method of recycling unsorted post-consumer polymeric waste, wherein the polymeric waste is first pulverized in an extruder (*see*, col. 3, line 65–col. 4, line 4 of Khait). Khait discusses a wide range of post-consumer waste products of varying non-expanded polymers (col. 6, line 63–col. 7,

line 15). While Khait may discuss a large number of types of polymeric waste, Khait is silent in regard to the recycling of expanded plastic waste. The pulverization step of polymeric waste discussed by Khait might be analogous to the treatment of ABS resin or polypropylene and other non-expanded or non-foamed plastics in the method discussed by Suka. However there is no disclosure or suggestion in Khait, as one of skill in the art will appreciate, that the pulverization of non-expanded or non-foamed plastic in the method described by Khait would be applicable to the treatment of expanded or foamed polystyrene, such as in the method of the presently claimed invention.

While the disclosures of Suka and Khait may both broadly relate to the recycling of plastic waste, the combination of the Khait pulverization step of non-expanded plastic waste in an extruder without heating with the disclosures of Suka, do not teach all the elements of the presently claimed invention, which is directed toward a method of recycling expanded polystyrene. As discussed above, there is no teaching or suggestion in either Suka or Khait of the applicability of the pulverization of non-expanded plastic waste without heat to expanded or foamed polystyrene products. In view of the foregoing, Applicants submit that the instant claims are not obvious, and thus respectfully request that the instant rejection be withdrawn.

Claims 2, 8, 9 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Suka as applied to Claim 1, and further in view of U.S. Patent No. 5,217,660 ("Howard"). The Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of the invention to use pellets comprising recycled polystyrene as taught by Suka to form a new expanded polystyrene product as taught by Howard and wherein the solvent used in the dissolving step preferably has a boiling point between 75 and 175 °C.

As set forth above, Suka alone does not teach all the elements of the claimed method. Suka is silent in regard to reducing the volume of the expanded polystyrene for recycling by compression in an extruder to partially melt said expanded polystyrene without external heating. Howard discusses grinding used polystyrene into small pieces, converting the used polystyrene foam into small used polystyrene foam chunks (*see* col. 5, lines 59–67 of Howard). However, as with the disclosures of Suka, Howard does not teach or suggest volume reducing of the expanded polystyrene without external heating. While the disclosures of Suka and Howard may both

broadly relate to the recycling of plastic waste, the disclosures of Howard do not cure the deficiencies of the disclosures of Suka in teaching all the elements, either taken alone or in combination with Suka, of the invention as claimed. As such, Applicants assert that the instant claims are patentable over Suka in view of Howard, and respectfully request that this rejection be withdrawn.

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Suka as applied to Claim 1, and further in view of JP 2000-025602 ("Fumio et al."). The Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of the invention to use methylene chloride and epoxide solution, as discussed in Fumio et al., as solvents in the volume reducing step in the method of Suka in order to achieve the claimed invention.

As set forth above, Suka alone does not teach all the elements of the claimed method. Suka is silent in regard to reducing the volume of the expanded polystyrene for recycling by compression in an extruder to partially melt said expanded polystyrene without external heating or heating the dissolved expanded polystyrene to a temperature of 200 °C or less. Fumio et al. discuss a prcessing liquid for foamed polystyrene. However, as with the disclosures of Suka, Fumio et al. does not teach or suggest volume reducing of the expanded polystyrene without external heating. While the disclosures of Suka and Fumio et al. may both broadly relate to the recycling of plastic waste, the disclosures of Fumio et al. do cure the deficiencies of the disclosures of Suka in teaching all the elements, either taken alone or in combination, of the invention as claimed. The disclosures of Fumio et al. do not cure these deficiencies in the disclosures of Suka in teaching all the elements, either taken alone or in combination with Suka, of the invention as claimed. As such, Applicants assert that the instant claims are patentable over Suka in view of Fumio et al., and respectfully request that the instant rejection be withdrawn.

CONCLUSION

Accordingly, Applicants submit that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any small matters outstanding of resolution, he is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

No fee is believed due with the filing of this paper. However, the Commissioner is hereby authorized to charge any deficiency in fees or credit any refund to Deposit Account No. 50-0220.

Respectfully submitted,

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I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on May 29, 2009.

Claire Wimberly